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09/670,192	09/26/2000	Siegfried Kurt Buss	FAO-0019	5598

7590 02/12/2004  
CANTOR COLBURN LLP  
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EXAMINER

SEALEY, LANCE W

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 02/12/2004

12

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/670,192

Applicant(s)

BUSS ET AL.

Examiner

Lance W. Sealey

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 and 22-24 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 13-18 is/are rejected.
- 7) ☒ Claim(s) 8,9,20 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2671

## **DETAILED ACTION**

### ***Allowed and Allowable Subject Matter***

1. Claims 10-12 and 22-24 are allowed, and claims 8-9 and 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. No prior art anticipates or suggests, in a computer based method featuring smaller files decomposed from a computer aided design file of a model, determining the distance between a surface on said model and said point on a corresponding physical object (claims 8, 10, 20, 22 and 24). Claims 11 and 23 are allowed because they depend on allowed claims 10 and 22, respectively, and claims 9 and 21 are allowable because they depend on allowable claims 8 and 20, respectively.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 and 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable by Noble (U.S. Pat. No. 5,392,222) in view of Foley et al., Computer Graphics: Principles and Practice

Art Unit: 2671

Second Edition in C ("Foley").

4. Noble, in disclosing locating a field of view in which selected integrated circuit conductors are unobscured, also discloses, with respect to claim 1, a computer based method comprising:

- decomposing data from a computer aided design file of a model (setup tool **2320**, FIG.22; the data decomposed resided in the layout **2210** and netlist **2215** files),
- saving said decomposed data in a plurality of smaller files (FIG.22 shows the decomposition from the layout and netlist files to the node-index **2240**, poly-index **2245**, muly-index **2250**, net-index **2255** and polygon & trapezoid **2235** files), and
- accessing at least one of said analysis files to analyze the surface geometry of said model (the FINDNET program uses polygon and trapezoid files **2235** to analyze surface geometry; see col.20, ll.1-9).

5. However, Noble does not disclose one of said smaller files as an analysis file which does not contain imaging data, said analysis file containing mathematics representing the model surface. This element is disclosed by the Foley computer graphics textbook. Section 7.1.2, p.288, specifies ingredients of a geographic model: files specifying spatial layout and shape of components (similar to applicants' WIF file **510**, FIG.3), files specifying connectivity of components (similar to applicants' DRE file **520**, FIG.3) and files in which application-specific data values and properties associated with components, such as electrical characteristics or

Art Unit: 2671

descriptive text, reside (this is the group of files in which the applicants' FLC file **620**, FIG.3, falls. Supporting this assertion of the examiner's is another statement two paragraphs later: "...a model of a computer network could store the connecting lines explicitly or could recompute them from a connectivity matrix with a simple graph-layout algorithm each time a new view is requested." If the computer network model recomputes the connecting lines using a stored connectivity matrix, then the file in which the connectivity matrix resides is a mathematics file.).

6. Therefore, it would have been obvious to one of ordinary skill in the art at the time this invention was made to have modified the Foley mathematics file in view of the Noble IC modeling software oriented view system by incorporating the Foley math file with the connectivity matrix, and the Foley algorithm for recomputing connectivity of components, into the Noble software. Such a modification to Noble would save space (Foley, Section 7.1.2, p.288, last paragraph).

7. Concerning claims 2 and 14, Noble discloses said at least one of said analysis files does not substantially contain data required to display an image of said model (col.20, ll.3-5).

8. Regarding claims 3 and 15, Noble discloses said at least one of said analysis files consists of data required to analyze said surface geometry (col.20, ll.1-9).

9. With respect to claims 4 and 16, Noble discloses at least one of said smaller files comprises imaging data (col.19, ll.65-68).

10. Concerning claims 5 and 17, Noble discloses at least one of said smaller files does not

Art Unit: 2671

substantially contain data required to analyze said surface geometry (technology file **2225**, FIG.22, and col.20, ll.11-12).

11. Finally, claim 13 is rejected in a manner similar to claim 1 except that claim 13 discloses a medium including machine-readable computer program code for managing computer aided design data, the medium including instructions for causing a computer to implement a method. These elements are disclosed in FIG.22 (Findnet routine **2275**) and FIG.23 (Lineindex routine **2310** and Findindex routine **2310**).

12. Therefore, in view of the foregoing, claims 1-5 and 13-17 are rejected as being unpatentable under 35 U.S.C. 103(a) by Noble and Foley.

13. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable by Noble in view of Warmerdam et al. ("Warmerdam", U.S. Pat. No. 6,089,742).

14. With respect to claim 6, in a manner similar to the rejection of claim 1, Noble discloses decomposing data from a computer aided design file of a model, saving said decomposed data in a plurality of smaller files, and accessing at least one of said analysis files to analyze the surface geometry of said model. However, Noble does not disclose at least one of said smaller files comprises a list of specified surfaces on said model and data relating to the smallest possible three-dimensional region that can enclose each specified surface. This element is disclosed in Warmerdam at col.1, ll.53-67.

15. Therefore, it would have been obvious to one of ordinary skill in the art at the time this

Art Unit: 2671

invention was made to have modified the Noble IC modeling software in view of the bubble hierarchy process disclosed by Warmerdam. Such a modification to Noble would reduce computational time and increase machine speed by facilitating the determination of whether collisions will occur between objects so that collisions can be avoided (Warmerdam, col.2, ll.22-24; col.1, ll.20-22; col.1, ll.12-14).

16. Rejecting claim 18 in a manner similar to claim 13, Noble discloses decomposing data from a computer aided design file of a model, saving said decomposed data in a plurality of smaller files, and accessing at least one of said analysis files to analyze the surface geometry of said model, and Warmerdam, in a manner similar to the rejection of claim 6, discloses at least one of said smaller files comprises a list of specified surfaces on said model and data relating to the smallest possible three-dimensional region that can enclose each specified surface.

17. Therefore, in view of the foregoing, claims 6 and 18 are rejected as being unpatentable under 35 U.S.C. 103(a) by Noble and Warmerdam.

***Response to Remarks***

18. The examiner appreciates the efforts of the applicants to transform the claims objected to in the previous Office action into independent claims in order to structure the claims so that they are in condition for allowance, and the examiner is persuaded by the applicants' argument that Rosenberg et al. (U.S. Pat. No. 5,724,264) does not disclose determining the distance between the surface on said model enclosed by said at least one target volume and said point on physical

Art Unit: 2671

object. However, since the examiner has found art to reject the “analysis file containing mathematics” limitation in claims 1 and 13 and the “files containing the smallest possible three-dimensional region” limitation in claims 6 and 18, all of the claims in this application are now rejected in a non-final rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the Office should be directed to the examiner, Lance Sealey, whose telephone number is (703) 305-0026. He can be reached from 7:00 am-3:30 pm Monday-Friday EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

**Any response to this action should be mailed to:**

MS Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to:**

**(703) 872-9306**



Serial Number: 09/670,192

Page 8

Art Unit: 2671

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

A handwritten signature in black ink, appearing to read "Mark Zimmerman", with a long horizontal flourish extending to the right.

MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600